



7S7

## TRIODE-HEPTODE CONVERTER

7S7

## GENERAL DATA

## Electrical:

Heater, for Unipotential Cathode:

Voltage. . . . . 6.3<sup>□</sup> . . . . . ac or dc voltsCurrent. . . . . 0.3<sup>□□</sup> . . . . . ampDirect Interelectrode Capacitances:<sup>○</sup>Heptode Grid No.1 to Heptode Plate . . . 0.03 max.  $\mu$ fHeptode Grid No.1 to Triode Plate. . . . 0.1 max.  $\mu$ fHeptode Grid No.1 to Triode Grid &  
Heptode Grid No.3 . . . 0.35 max.  $\mu$ fTriode Grid & Heptode Grid No.3 to  
Triode Plate . . . . . 1 . .  $\mu$ fHeptode Grid No.1 to All Other  
Electrodes (RF Input) . . . . . 5 . .  $\mu$ fHeptode Plate to All Other  
Electrodes (Mixer Output) . . . . . 8 . .  $\mu$ fTriode Grid & Heptode Grid No.3 to All  
Other Electrodes Except Triode  
Plate (Oscillator Input) . . . . . 7 . .  $\mu$ fTriode Plate to All Other Electrodes  
Except Triode Grid & Heptode  
Grid No.3 (Oscillator Output). . . . . 3.5 . .  $\mu$ f<sup>○</sup> With external shield connected to cathode.

## Mechanical:

Mounting Position. . . . . Any

Maximum Overall Length . . . . . 2-25/32"

Maximum Seated Length. . . . . 2-1/4"

Maximum Diameter . . . . . 1-3/16"

Bulb . . . . . T-9

Base . . . . . Lock-in 8-Pin

Basing Designation for BOTTOM VIEW . . . . . 8BL

Pin 1 - Heater

Pin 2 - Heptode Plate

Pin 3 - Triode Plate

Pin 4 - Triode Grid,

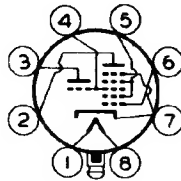
Heptode

Grid No.3

Pin 5 - Heptode

Grids No.2

&amp; No.4



Pin 6 - Heptode

Grid No.1

Pin 7 - Cathode,

Heptode

Grid No.5,

Internal

Shield

Pin 8 - Heater

Plug - Base Shell

## CONVERTER

## Maximum Ratings, Design-Center Values:

HEPTODE PLATE VOLTAGE. . . . . 300 max. volts

HEPTODE GRIDS-No.2 &amp; No.4

(SCREEN) VOLTAGE . . . 100 max. volts

HEPTODE GRIDS-No.2 &amp; No.4

SUPPLY VOLTAGE . . . . . 300 max. volts

<sup>□</sup> Nominal voltage = 7.0 volts.<sup>□□</sup> Nominal current = 0.32 ampere.

DEC. 30, 1947

TUBE DEPARTMENT

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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## HEPTODE GRID-No.1 (CONTROL-

### GRID) VOLTAGE:

Positive bias value. . . . .	0 max.	volts
HEPTODE PLATE DISSIPATION. . . . .	0.6 max.	watt
HEPTODE GRIDS-No.2 & No.4 DISSIPATION. . .	0.4 max.	watt
TRIODE PLATE VOLTAGE . . . . .	175 max.	volts
TRIODE PLATE-SUPPLY VOLTAGE. . . . .	300 max.	volts
TRIODE PLATE DISSIPATION . . . . .	1 max.	watt
TOTAL CATHODE CURRENT. . . . .	14 max.	ma
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode. .	90 max.	volts
Heater positive with respect to cathode. .	90 max.	volts

### Typical Operation:

Heptode Plate Voltage. . . . .	100	250	volts
Heptode Grids-No.2 & No.4 Voltage. . .	100	100	volts
Triode (Oscillator) Plate-Supply Volt. .	100	250†	volts
Heptode Grid-No.1 Voltage. . . . .	-2	-2	volts
Cathode-Bias Resistor. . . . .	240	195	ohms
Triode Grid & Heptode			
Grid-No.3 Resistor . . . . .	50000	50000	ohms
Heptode Plate Current. . . . .	1.9	1.8	ma
Heptode Grids-No.2 & No.4 Current. . .	3	3	ma
Triode Plate Current . . . . .	3	5	ma
Triode Grid & Heptode			
Grid-No.3 Current. . . . .	0.3	0.4	ma
Heptode Plate Resistance . . . . .	0.5	1.25	megohms
Conversion Conductance . . . . .	500	525	μmhos
Conversion Conductance (Approx.) for			
heptode grid-No.1 bias of -21 volts .	2	2	μmhos
Total Cathode Current. . . . .	8.2	10.2	ma

† Applied through a 20000-ohm dropping resistor, properly bypassed.

NOTE: The transconductance of the triode section, not oscillating, is approximately 1650 μmhos under the following conditions: triode plate volts = 100, triode grid and heptode grid No.3 volts = 0. Under the same conditions, triode plate current is 6.5 ma., triode plate resistance is 11000 ohms, and amplification factor is 18.

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